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U. S. Department of Agriculture.

SEASON 1940

Catalogue of

Citrus Trees

ROSES AND GRAPE VINES

This Catalogue cancels all previous issues.

F. E. BENHAM

Citrus Specialist

BENYENDA NURSERIES

BYRNESTOWN,

QUEENSLAND,

(AUSTRALIA)

Phone: 6R.

Byrnestown.

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SITUATION OF NURSERY.

The Nursery is situated ten miles north-west from Byrnestown, on the bank of the Burnett River, and is served by a good road, including four miles of main road. Trees are delivered to station of despatch—Byrnestown—by motor.

1940 CITRUS FRUIT TREES. EXTRA SPECIAL QUALITY.

This season we offer the finest lot of citrus trees so far produced. We are indeed pleased to be in this happy position. Many established Citrus fruit growers and prospective planters, have inspected our present lot of Citrus Fruit trees during their various stages of growth and have expressed their appreciation of the prominence of the outstanding vigor and healthiness of the trees. Many favourable comments have been made in regard to the success of our efforts to keep well out in the fore with the highest standard of quality Citrus trees. No culls are allowed to leave the Nursery. Extra special quality citrus fruit trees, like any other commodity of special value, cost more to produce but any expenditure on extra quality citrus trees is a safe and sound investment.

Benyenda Nurseries do not supply trees that fall short of the following specifications viz:—**Thoroughly well-rooted, healthy, strong and straight with the ideal conformation** desired by every practical grower.

TIME FOR PLANTING.

Benyenda Nurseries citrus trees are ready for planting each year at the beginning of February and are available from then onwards throughout the season.

Citrus trees may be planted at almost any season of the year but the best results will usually be obtained by planting during autumn or spring. Where heavy frosts may be experienced late autumn planting is not advisable.

SUBSTITUTION.

Trees grown in our Nursery are the only trees offered for sale and customers are therefore assured that they will receive trees propagated with carefully selected buds. If we are unable to supply the required varieties we promptly advise to that effect but with small orders we make a practice of supplying other varieties, which in our judgment are suitable, unless instructed to the contrary. We desire to make it clear that when our own stocks are exhausted we do not make a practice of buying in from other Nurseries.

Trees bearing our label are genuine "Benyenda" Citrus trees and obtainable only from "Benyenda" Nursery. F. E. Benham is the sole proprietor.

The foregoing, we feel certain, emphasises the fact that we have no agents although it has come to our knowledge that trees have been offered through other channels for sale as "Benyenda" citrus trees. It is our desire, therefore, to warn planters of imitations.

CLEAN TREES.

Benham's trees are always well-rooted, healthy, strong and straight, with the ideal conformation so desired by every practical grower.

The Nursery is regularly inspected by the Inspector of Nurseries on behalf of the Department of Agriculture and Stock.

PACKING.

For transport great care is invariably exercised in lifting and packing of Trees. This is assurance of arrival at destination in satisfactory condition.

WHAT TO DO ON RECEIPT OF TREES.

It is assumed that the ground has been thoroughly worked.

If you are not ready to plant the trees immediately upon their arrival and if the consignment has not been delayed en route—place the bundle **without unpacking** in a cool place until you are ready to proceed. If the soil is prepared and ready and planting is to proceed it is important to bear in mind that the roots must be carefully protected when the parcel is opened: A clean damp bag is suitable for this purpose. As each tree is taken for planting the roots of the remainder must be protected from the air and wind.

If planting is to be delayed say for several days it is advisable to bed the trees firmly in the ground. This can be better described as planting them very closely together; taking care that the soil is firmed well and then watered. Planting in permanent positions should be carried out at the first opportunity. It is best to dig holes just prior to planting.

CONCERNING CARE AFTER PLANTING.

The young trees need great care and cultivation over the first few years. For the grower who has invested money it is very bad business to neglect the trees while they are young and coming into profit; it is also bad advertisement for the nurseryman who first produces the trees and who has no redress against the grower's neglect. All will agree that the main if not the sole purpose of planting is to create a revenue and that the income creation should increase from year to year—it is poor business then to plant cheap trees and worse business, having planted good trees, to neglect them.

CONDITIONS OF SALE.

Although the greatest care is exercised in supplying trees in accordance with the description contained herein, it is a condition of sale that no guarantee is given, either expressed or implied. As our reputation is at stake, however, customers may be assured that everything humanly possible is done to deliver trees of high productive capacity and true to name.

It is, therefore, understood that it is a condition of every sale, that notwithstanding any statute, rule or law to the contrary, we take no responsibility for results and give no warranty, expressed or implied, as to the nature, description, kind, quality or productiveness of such trees. If the delivery of the trees is not accepted as having been made under these terms, the purchaser is requested to return them immediately, carriage prepaid.

TERMS OF BUSINESS.

Unknown customers are respectfully requested to remit with order and to please add cost of postage or railage. Exchange must be added to cheques. Money orders and postal notes should be made payable at Gayndah.

TERMS IN RELATION TO ORDERED CITRUS TREES

Our trees are ready for distribution each year at the beginning of February. The season commences therefore on the first of February and continues to the last day of October.

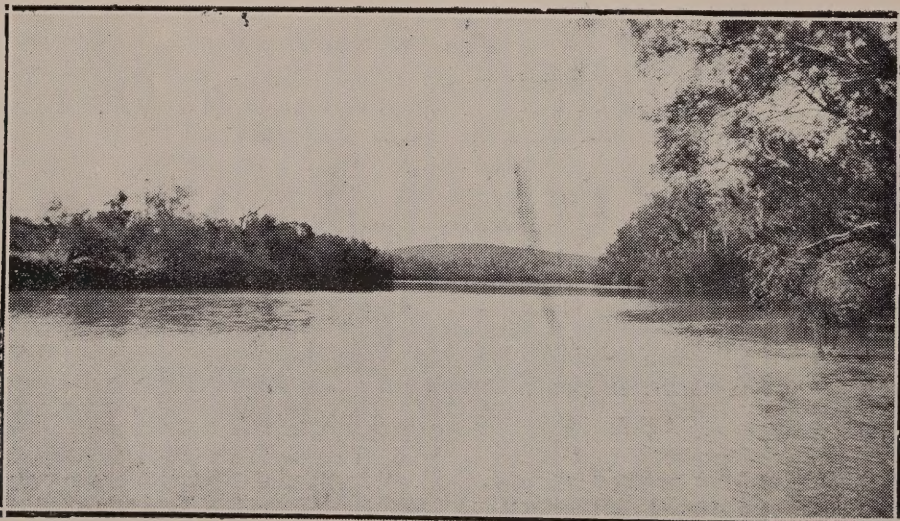
A deposit of one third the value of the trees ordered entitles client to have trees held till middle of packing season. Should client require trees to be held later in the Season than end of July, full payment should be made.

Trees must be taken delivery of on or before October 31st.

All orders accepted are subject to these conditions.

FREIGHT AND POSTAGE.

On small parcels either one of two rates apply—"To pay" or "prepaid". As prepaid freight is 25% cheaper, it is definitely an advantage to the purchaser to add sufficient for prepayment. Any surplus can be returned or credited. If remittance shall not cover prepayment of freight, packages will be forwarded "to pay."



Water Supply

F. E. BENHAM, Specialist, "Benvenda Nurseries", Byrnestown, Q'land., Australia.

SELECTED CITRUS VARIETIES. COMMERCIAL VARIETIES RECOMMENDED, AND PRICES.

Since the introduction of the recent new regulation, the selection of buds is under the Supervision of the Department of Agriculture, i.e., for all A. Grade varieties.

SPECIAL NOTE. Less than 6 of any one variety charged at 2/- each; over 6 and under 50 of any one variety charged at dozen rates; 50 or over of one variety charged at hundred rates.

All prices are nett cash.

The following details represent the description of each variety of the trees offered this season.

LEMONS (A. GRADE)

LISBON LEMON (A. Grade). Growth vigorous, regular producer, well shaped, smooth skin. Good packer and carrier.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

VILLA FRANCA (A. Grade). Growth not so vigorous as Lisbon. Practically thornless, smooth thin skin. Becoming more popular owing to its summer crops and consequent higher values.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

IMPROVED LISBON LEMON (A. Grade). Apparently more vigorous than the Villa Franca, almost thornless.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

ORANGES (A. GRADE)

LATE VALENCIA (A. Grade). Vigorous grower, heavy bearer. Latest ripening orange of commerce. Finds a ready market after the Southern Navels are finished.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

WHITE SILETTA (A. Grade). Good grower, heavy cropper, smooth skin, early. Not as valuable as the Joppa for early markets.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

JOPPA (A. Grade). Growth vigorous and heavy, persistent bearer of early valuable marketable fruit. Specially suited for Queensland.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

JOPPA ORANGE.

SPECIALLY SUITED FOR QUEENSLAND.

For districts in Queensland where the production of oranges is carried out successfully, the Joppa should be the most profitable of the early varieties.

Let it be clearly understood that we mean the real Joppa when we speak of the Joppa orange and its advantages.

JOPPA A VIGOROUS GROWER.

Quite a notable feature of the real Joppa is its vigorous constitution. The progress of the young trees in the Nursery bears evidence of this statement. The reports received from various districts also indicate that our special Joppa is unique as a grower.

JOPPA UNIQUE FOR QUALITY.

The returns per case for Joppa Orange in the market reports speak well for this orange. It is of ideal average market size, splendid for grading and packing, juice content correct, flavour delicious. The Joppa also is a constant bearer cropper.

WASHINGTON NAVEL (A. Grade). Strong grower and bearer. The most prominent Navel orange of commerce. Ripening in March-April, it catches the early Sydney and Melbourne markets in addition to Queensland markets which are usually bare of Citrus Fruits at that period. The trees we offer of this variety are propagated from the well known "Benyenda" strain of Washington Navel—regular heavy producers.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

MANDARINS (A. GRADE)

BEAUTY OF GLEN RETREAT (A. Grade). Good grower under favourable conditions. Heavy cropper. Solid Fruit with thin rind. Packs and carries well.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

EMPEROR (A. Grade). Popular market variety, strong grower, fine flavoured fruit, good all round variety.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

SCARLET EMPEROR (A. Grade). As the name implies, the fruit is a beautiful scarlet in colour, rather puffy in the early years of the trees life improving as the tree ages. For home gardens.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

SOLID SCARLET (A. Grade). We consider this variety is worthy of inclusion in the A. Grade class, notwithstanding that the Department has not yet made it compulsory.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

GRAPE FRUIT (A. GRADE)

MARSH'S SEEDLESS (A. Grade). Vigorous grower, excellent commercial variety. Trees offered are of the well known, popular, seedless type.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

NOTE RE GRADES.

The Terms "A" Grade and "B" Grade do not signify any variation in quality. "A" Grade trees are those varieties recommended by the Department of Agriculture and Stock for commercial purposes.

Every tree sold by our Nurseries, whether "A" or "B" Grade, is sturdy and well-grown and all receive the same careful and expert attention from the time seeds are planted until the young trees are despatched to all parts of Australia.

"A" and "B" Grade trees are all the same price.

B. GRADE VARIETIES

Most of the following varieties are only suited for Home Gardens.

LEMONS (B. GRADE).

EUREKA. (Sweet rind). Excellent market varieties.

GENOA. Thornless. Good bearer.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

ORANGES (B. GRADE).

MALTESE BLOOD. Medium, yellow, tinted red. Dwarf grower, late.

RUBY BLOOD. Medium, skin reddish yellow.

MEDITERRANEAN SWEET. Good flavour, bears well.

THOMPSON NAVEL. Large, fine thin skin, early.

GOLDEN BUCKEYE NAVEL. Thin skin, delicious flavour.

NAVELENCIA. Usually bears well, fine flavour.

BURGESS NAVEL. Only small quantity.

SEVILLE. Bitter Fruit, used for jam, etc. Popular for factory.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

MANDARINS (B. GRADE).

THORNY. Medium, yellow, solid, mid season.

ELLEDALE BEAUTY. Large, yellow, very smooth, hangs well.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

GRAPE FRUIT (B. GRADE).

THOMPSON GRAPE FRUIT. Sport from Marsh's Seedless, Pink coloured flesh, likely to become popular.

WHEENY GRAPE FRUIT. Good quality, juicy, fine skin.

TRIUMPH GRAPE FRUIT. Medium, peel smooth and thin.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

LIMES (B. GRADE).

TAHITIAN. Large, greenish yellow, juicy, nearly seedless, prolific. Recommended.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

CITRON (B. GRADE).

KNIGHTS. Fruit large, oblong, skin rough, best for candied peel.

CALIFORNIAN. Extra large, long with rough skin. Strong grower and regular producer.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

CUMQUAT. Strong grower, used for jam, etc.

Prices: 2/- each, 22/- per dozen, £7/10/- per hundred.

PACKING CHARGES, BUNDLE METHOD.

Not exceeding 9 trees, 9d.; not exceeding 12, 1/-.

Not exceeding 25 trees, 1/6; not exceeding 36 trees, 1/9.

Not exceeding 50 trees, 2/-.

PACKING CHARGE CRATE METHOD.

Not exceeding 50 Trees, 3/-; and 2/6 for each additional 50 trees.

For Interstate and Overseas extra will be charged.

Benham's specially designed crate method of packing (introduced 1939), is the safest and best for the transport of trees.

Unless otherwise requested we pack in crates, i.e., 50 Trees and over.

WELL BALANCED TREES.

PRACTICAL AND MODERN METHOD.

STAKING OF TREES A NECESSITY.

The illustration below shows the modern nursery method of growing straight young trees, by tying each to a stake. This method, combined with the very careful and constant attention they receive during the whole period of growth, enables us to supply trees that open up to our customers' entire satisfaction. **No crooked or unshapely trees are grown, consequently none are supplied.**

To ultimately have a grove of citrus trees which are symmetrical in growth, evenly balanced, shapely and capable of carrying the crop to maturity, it is not only an advantage to plant well-grown trees with a good conformaion, but an absolute necessity. Staking a plant or trees is only a light job but nevertheless intricate and this again calls for special attention and must be carried out in a skilful manner, more particularly when thousands of trees are to receive the same care and treatment.



It is certainly progress on straight lines when every individual tree is staked.

The result of staking all trees is clearly shown here. Straight, sturdy trees are the result of strict attention to every detail.

The photo shows portion of 65,000 Citrus ready for sale.

For 20 years and more this method has not only been adopted by us but has been carried out in a practical and efficient manner, with the result that visitors to our Nursery this season will find over 65,000 staked trees, that would, with their other prominent features, be certain to satisfy even the most critical buyer. We claim to be the largest growers of staked citrus trees in Queensland, if not in the whole of Australia.

F. E. BENHAM, Specialist, "Benyenda Nurseries", Byrnestown, Q'land., Australia.

CHOICE VARIETIES OF TABLE GRAPES

PRICES :

1/- each; 10/- dozen; £3 per hundred.

For orders of fewer than $\frac{1}{2}$ dozen of one variety, the price of 1/- each will apply; 50 and over of one variety will be charged for at per hundred rates; less than 50 of one variety, dozen rate applies.

LIST OF VARIETIES.

SNOWS BLACK MUSCAT—The most popular of the Black Muscats. Ripens in February in the Stanthorpe District but will hang until late in the season. Berries large, rather oval sometimes round. Deep purplish black with plenty of bloom. Excellent juicy, rich flavour, easy to grow, and regular in habits. Highly recommended.

MRS. PRINCE'S BLACK MUSCAT—Late, large berries, deep shining black skin, thin, very tough.

BLACK HAMBURG—Bunches large, good regular round berries, regular cropper, ripens early.

BLACK PRINCE—A very handsome grape, long bunches, largest size berries, oval, deep black in colour. Heavy bloom. Exquisite flavour.

ROYAL ASCOT—A very regular cropper, deep shining round berries, black. When left to ripen well, almost equal to Muscat in flavour.

GROS COLMAN—A splendid late black grape with large berries. Deep purplish black, heavy loam. Bears freely. Popular for Show Purposes on account of its size and regularity of berries.

PURPLE CORNICHON—Very large bunches, pointed in shape, deep shining black, an excellent carrier, tough skin, will hang late in the season.

WALTHAM CROSS—Very large bunches, round berries, tough skin, pale amber, a really wondrous grape. Late. A good eater as well as a raisin grape.

SYRIAN—An early white grape, strong grower, very sweet, amber in colour, thin skin, suitable for trellising.

CINSANT—Black. Mid-season.

DORADILLA—Strong grower, with very large berries, tough skin, rich amber, good keeper. Will hang very late in the season. Round berries.

RED HANNEPORT MUSCAT—Valuable market variety. Copper coloured grape, with a rich strong Muscat flavour. Hangs until middle of March.

CHAOUCH—A very early white grape with tough skin. Coming into favour for planting. Amber in colour.

GORDO BLANCO—An excellent white grape, with very large berries. Beautiful flavour, amber in colour. Suitable both for market and raisin making.

IONA—Strong and vigorous. Amber, mid-season. Suits Queensland well.

ISABELLA—A well known variety, berries large, black. Strong grower. Suitable for coastal districts.

IMPROVED ISABELLA—Black. Suitable for coastal districts.

PINK LADIES' FINGER—Pinkish white, berries long, attractive shape. Requires dry climate.

CONCORD—Adapts itself to varying conditions, Black, large cropper, hardy, early, fair size berries. Does not keep well or ship well.

Ready for planting 1st July and August.

APPLES.

1/6 each; 15/- per dozen.

DELICIOUS. Medium large, colour streaky, fine dessert, late mid season.

GRANNY SMITH. Large, greenish yellow, juicy, eating and cooking, late.

JONATHAN. Large, yellow, overlaid red, flesh crisp and juicy. mid season.

APRICOTS.

1/6 each; 15/- per dozen.

MOORPARK. Large, yellow, red cheek, good quality, mid season.

NEWCASTLE. Medium, yellow, red cheek, good quality, early.

OULLIN'S EARLY. Large, golden yellow, roundish, rich flavour.

NECTARINES.

1/6 each; 15/- per dozen.

GOLDMINE. Very large, bright bronzy red, fine flavour.

MASTERPIECE. Cross between a Nectarine and a peach.

PEACHES.

1/6 each; 15/- per dozen.

ANZAC. Ripens before Christmas.

FLAT CHINA. Medium, flat, greenish, tinted red, early, the most popular for Queensland.

HALES EARLY. Large, blush red, good flavour, requires good soil. Early.

MAYFLOWER. Large, bright red, good quality.

WIGGINS. Large, oblong, creamy, red cheek, white flesh.

PEARS.

1/6 each; 15/- per dozen.

CHINA. Large, yellow, prolific, good for kitchen and preserving.

PACKHAM'S TRIUMPH. Large, greenish yellow, late.

EUROPEAN PLUMS.

1/6 each; 15/- per dozen.

EXCELSIOR. Large roundish, purple, fine flavour, sweet.

JAPANESE PLUMS.

1/6 each; 15/- per dozen.

BURNBANK. Large, cherry red, firm yellow flesh, early. Requires good soil.

BEAUTY. Medium, heart shaped, bright crimson, good flavour.

KELSEY. Extra large, heart shaped, fine flavour. Late.

WILSON. Medium, large, bright crimson, flesh yellow.

PERSIMMONS.

2/3 each; 24/- per dozen.

NIGHTINGALE. Cone shaped; very superior.

FLAT SEEDLESS. Heavy bearer, good quality.

FIGS.

1/6 each; 15/- per dozen.

WHITE ADRIATIC. Medium, brownish green thin skin, prolific, fine flavour, one of the best. Recommended.

BROWN TURKEY. Large, tawny black, good producer.

BRUNSWICK. Large, early variety.

MULBERRIES.

1/6 each; 15/- per dozen.

DOWNING'S EVERBEARING. Large fruit, juicy, highly recommended.

HICKS. Large, glossy black, early and prolific bearer. 2/- each.

BLACK ENGLISH. Large Black and sweet. 2/- each.

QUINCES.

REA'S. Large roundish yellow, fine quality, mid-season.

CUSTARD APPLES.

3/6 each.

PINK MAMMOTH. Very large with few seeds.

SMOOTH FRUITED. Prolific, medium size.

CHERRY GUAVA.

1/6 each.

MANGOES.

BOWEN APPLE MANGO. Very large, stringless, fine flavour. 3/6 each.

BANANA MANGO. Pale yellow, splendid flavour. 2/- each.

KENSINGTON PRIDE. One of the best flavoured mangoes. 3/6 each.

GULLIVER'S TRIUMPH. Large fruit, peels well. Good flavour. 2/6 each.

BOUGAINVILLEA PLANTS.

LATERITA. Brick red. 3/- each.

MAGNIFICA TRAILLI. Purple. 1/9 each.

THOMASSII. Best Rose pink. 2/6 each.

MRS. BUTT. Crimson lake, brilliant, everblooming. One of the best. 3/- each.

ROSES.

Price 1/- each; 10/6 per dozen. Cash with Order.

RAILAGE AND POSTAGE RATES.

RAILAGE:		PARCEL POST:	
1 to 3 roses	1 0	1 to 3 roses	1 3
4 to 6 roses	1 6	4 to 6 roses	2 0
7 to 9 roses	1 9	7 to 12 roses	2 9
10 to 12 roses	2 0		

Add postage or railage to order, as it is 25 per cent. dearer to pay railage at receiver's end.

Our roses arrive in good condition and are strong, hardy trees. With reasonable care in planting, excellent results and glorious blooms will be your reward.

OUR ADVICE, condensed, is: "Be careful, thorough and speedy, in the operation of planting."

Cultural Notes herein.

All our rose trees are guaranteed true to name, and up to the best standard of quality.

ROSES. SELECTION OF VARIETIES CAN I GROW ROSES?

So many people fear that rose-growing is difficult—or their soil is not suitable. We want to make it clear that in the majority of cases Roses can be grown with reasonable care and attention anywhere in Queensland. Some points to watch are:—

1. Roses prefer open and sunny positions—do not plant under trees, overhanging hedges, etc.
2. The ideal soil is a rich heavy loam—clay alone is bad. Roses, however, will grow well in **any** soil, provided the ground is properly prepared before planting.
3. Roses may be planted out any time after early autumn. Prepare the beds in plenty of time, adding manure where required. Manure **must not** be added when the plants are being put in.

We offer 15,000 Roses this season. Any one interested is cordially invited to inspect.

THIS SEASON WE OFFER AN EXTRA SPECIAL LOT OF
ROSE TREES — STRONG WELL ROOTED, STURDY
PLANTS.

1939 NOVELTIES — Price 2/- each.

AMPERE, H.T.—Attractive bicolour. Caupcine red on inside, paler towards edges; reverse orange yellow, coloured with carmine. Large double blooms. Vigorous.

GOLDEN QUEEN, H.T.—Golden yellow, veined carmine on exterior. Large full blooms of good form. Vigorous. Few thorns. (Only few, available early in season only).

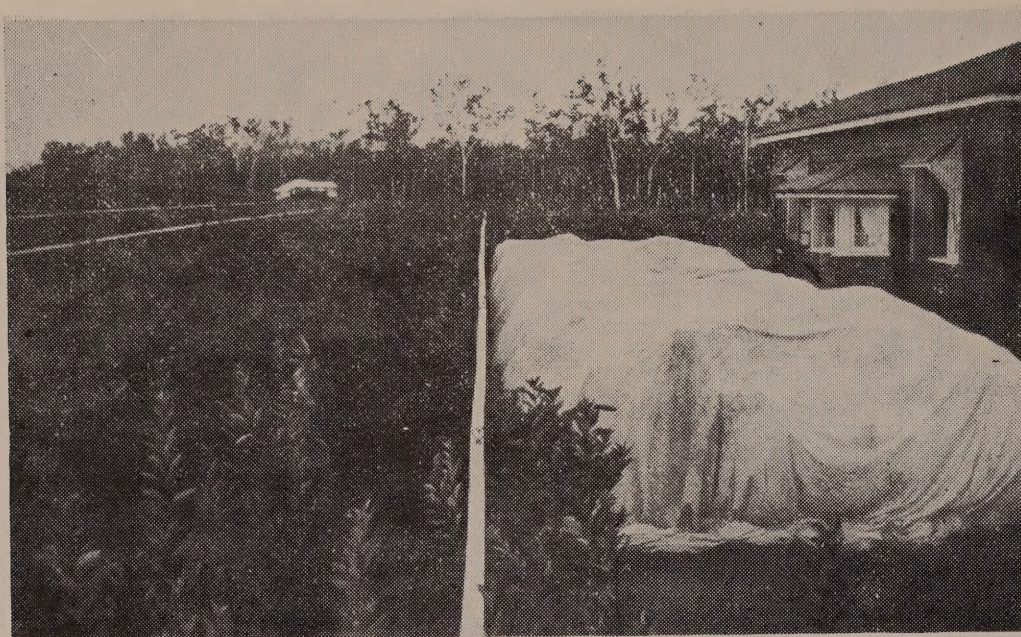
F. E. BENHAM, Specialist, "Benyenda Nurseries", Byrnestown, Q'land., Australia.



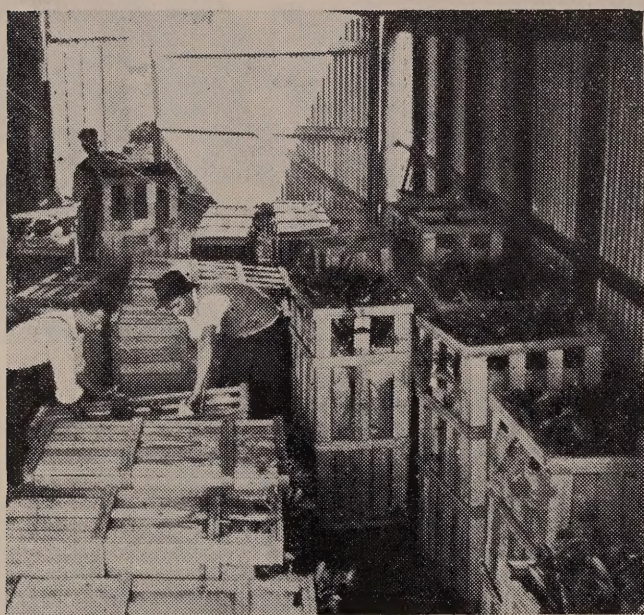
Strong, Straight and well shaped.
Grown to a high standard of quality.



Every tree is carefully trimmed before despatch.
Checking ordered Citrus.



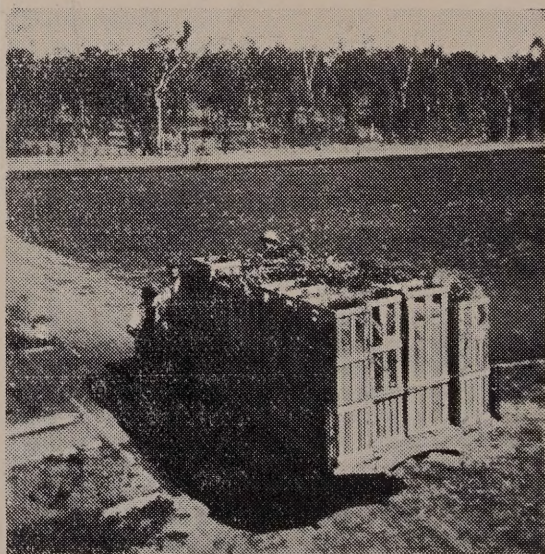
fumigation.



PACKING

(Corner of Shed)

Showing Benham's specially designed
crate method.



Transport.



Shed, Trucks and Packing Staff.



Citrus ready for Transport.



Seedling Beds.



Trees are fumigated in nursery.



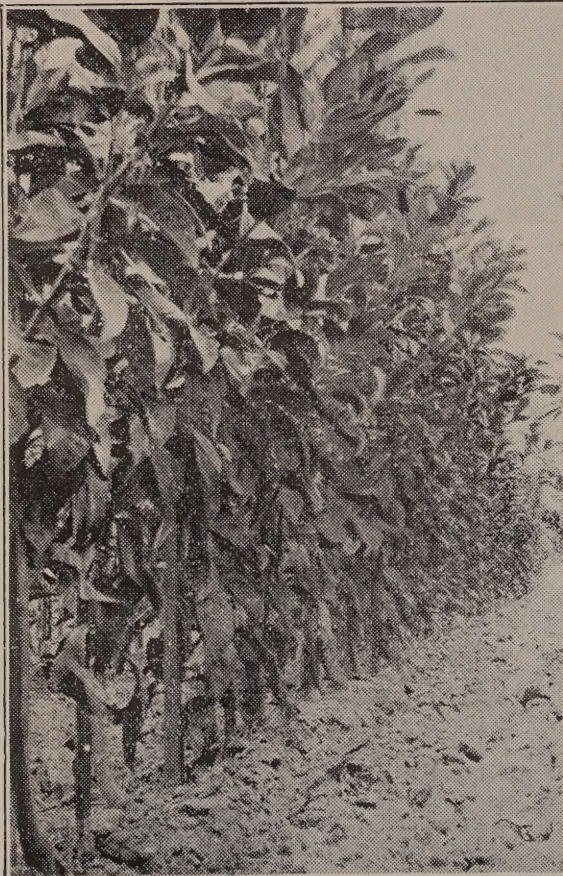
Our fumigation is thoroughly done at night.
The above snaps are only to give some idea of operations.



Nursery Gang at work. South west corner of Nurseries.



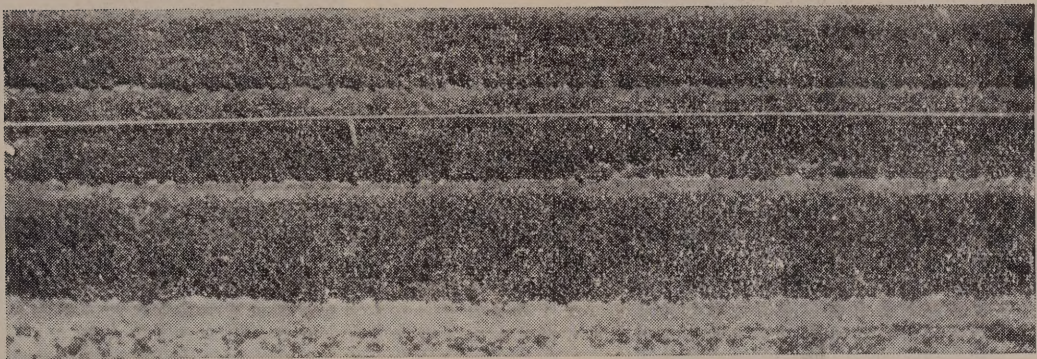
Grass specially grown for Packing purposes.



Different stages of staked Citrus Trees.



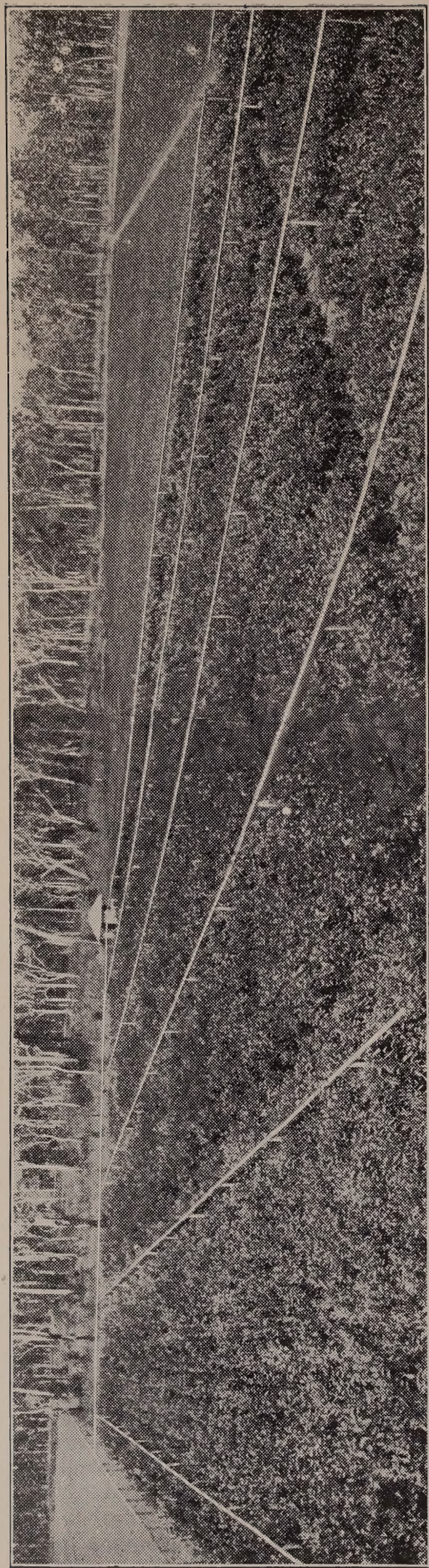
Preparing Seed Beds.



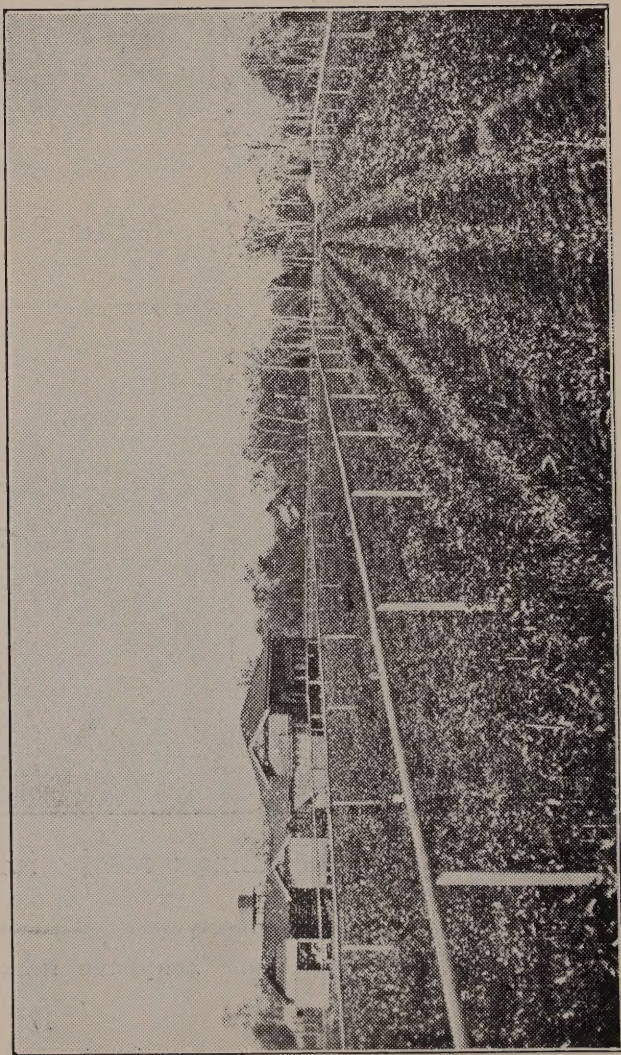
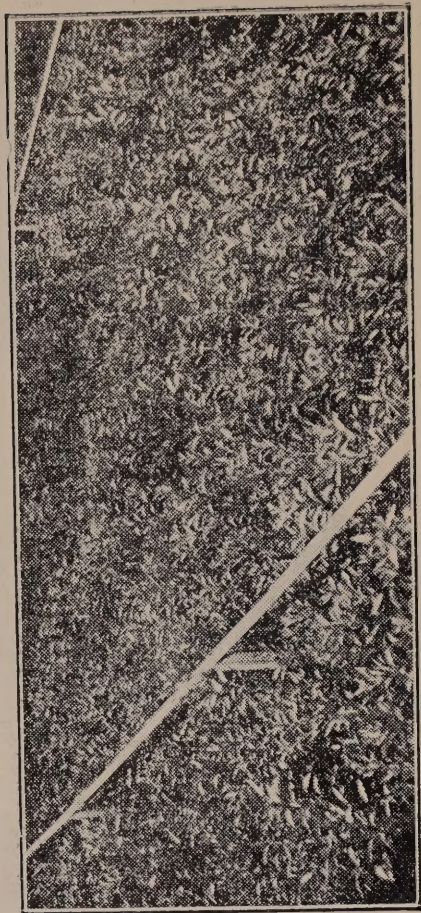
Citrus Seedlings.



Seedlings ready for transplanting.



Overhead Nursery Irrigation.





Well advanced Rose Trees—ready for distribution this season.

GENERAL LIST — Price 1/- each; 10/6 per dozen.

AUSTRALIAN CENTENIAL—Beautiful red, strong grower.

AMBER, H.T.—Bright yellow long pointed buds.

ALEXANDER HILL GREY, H.T.—Lemon yellow, good size blooms, free flowering richly scented, good grower. A favourite yellow. Recommended.

ANTOINE REVOIR, H.T.—Pale rosy flesh colour, deeper in centre. Large well shaped blooms, strong hardy grower. Popular.

BEATRICE MCGREGOR, H.T.—1938. Well formed full dark red rose. Scented and healthy.

BILLY BOILER, H.T.—Dazzling red rose, free flowering, grows well.

BRIARCLIFFE, H.T.—Can be described as like Columbia. Fine blooms of a rich clear shade of pink.

CANARY, H.T.—Light golden bud, edged with cerise, when fully opened bright clear canary.

CHRISTINE DE NOUE—Double rose, deep rosy crimson. Strong grower.

CHAS. K. DOUGLAS, H.T.—Large full flowers, flaming scarlet, flushed bright velvety crimson. Vigorous.

COLUMBIA, H.T.—Deep pink, nicely formed flowers produced on long stems. Good grower; one of the most popular pinks. Recommended. (Sells well, we believe this pink rose should be in every garden).

CONTESA DE SASTAGO, P.—A recent sensational novelty. Golden yellow bud, opening into well formed blooms, red inside, golden yellow outside. A most beautiful rose; thoroughly tried, strong grower. Recommended.

CRIMSON GLORY, H.T.—Deep vivid crimson, with soft velvety nap. Splendid grower, prolific bloomer. One of the best red roses introduced for many years. Every garden should have one of these. Strongly recommended. (We believe, this is the best red for blooms listed, in sales comes next to Hadley).

You will rejoice, when you open your parcel of roses.

CRUSADER—A beautiful red rose. Good grower.

DAILY MAIL SCENTED, H.T.—Rich deep velvety crimson, medium size bloom, fragrant and free flowering. Highly recommended. Very popular.

DAME EDITH HELEN, H.T.—This rose is a beautiful glowing pink. Blooms large and full, of perfect form.

DOROTHY PAGE ROBERTS, H.T.—Coppery pink, shaded apricot, very good grower, old favourite. Recommended.

EDITOR McFARLAND, H.T.—Erect, vigorous grower. Colour bright rose, shaded salmon and red. Flowers large and of beautiful form. Strong grower. Highly recommended. (One of the loveliest pinks).

EDITH NELLIE PERKINS, H.T.—Medium cerise, merging into orange salmon. Good grower. (Still a favourite).

E. G. HILL, H.T.—One of the best red roses.

E. J. MOLLER—Red, rather full blooms and free flowering.

ELITE, H.T.—Glowing rose, with orange shadings. Not double.

ETOILE DE HOLLANDE, H.T.—Without a doubt one of the best reds. Large fragrant blooms; good grower. Show blooms. Highly recommended. (For growth and all round qualities this red is the best).

ETOILE DE FRANCE—Old time red rose.

ELI HARTMAN, H.T.—Golden yellow, vigorous. Mildew proof. Recommended.

FRAU KARL DRUSCHKI, H.T.—Vigorous grower, beautiful pure white blooms, good form.

FAIENCE, H.T.—Flowers a mixture of peach and apricot shadings. Clear green healthy foliage. (Promising well, every bloom beautiful).

GAIETY—Orange, indian red and silver. Grows well.

GENERAL SUPERIOR JANSEN, H.T.—Blooms of deep carmine.

GISSY LASS, H.T.—Scarlet Crimson, form full and globular. Grows well.

GIRONA, 1938—A mixture of rose pink, yellow and red, somewhat resembling Talisman. Not a full rose.

GEORGE DICKSON—A beautiful dark red, vigorous. An old favourite.

GOLDEN DAWN, H.T.—Rich sunflower yellow, flushed old rose. Vigorous, highly recommended.

GRENOBLE—Vigorous. Foliage dark green; disease proof. Long buds, flowers large, full splendid form of brilliant scarlet colour. Sweetly perfumed.

GENERAL McARTHUR—Bright scarlet crimson blooms, freely produced. Delightfully scented. Recommended.

GEO. SCHWARTZ, H.T.—Bright yellow rose, buds long and pointed; semi-double. (One of the brightest yellow roses).

GEHEIMRAT DUISBERG, H.T.—A seedling from Rapture and Julien Potin. Deep yellow, same as Julien Potin. Strong grower.

HADLEY, H.T.—Rich velvety crimson, of good shape and size; sweetly scented. One of the best reds; practically mildew proof foliage. Highly recommended. (This red is still the best seller, and we feel it will continue to be. It is so sweetly scented and blooms well).

HAWLMARK CRIMSON, H.T.—Beautiful crimson scarlet rose. Vigorous.

HILDA, H.T.—Deep imperial pink on outside petals, with inner face of coppery salmon. Full blooms. Good growth. Blooms hold well during the hottest weather. (Strong hardy garden rose, blooms last well even when cut).

HIS MAJESTY, H.T.—Dark crimson. Vigorous grower.

HOSIER BEAUTY, H.T.—Rich velvety crimson with darker shadings.

HUGO ROLLER, T.—Rich lemon yellow, petals edged and profused crimson.

JONKHEER, J.L. MOCK, H.T.—Blooms produced with freedom and carried erect. Large perfect form. Colour carmine, changing to imperial pink, sweetly scented. Strong grower. (One of the best all round pinks, blooms hold well. Recommended).

JULIEN POTIN, P.—The most brilliant yellow rose yet introduced. A rich golden yellow that grows deeper as the flowers mature. Buds long and shapely, which develop into large, full flowers. Sweetly scented. Recommended.

JOANNA HILL, H.T.—Outer petals clear sulphur yellow, inner petals deeper tone, showing decided pink flush. Fairly full, good form.

For 1940 this present season—we offer you the quality Rose Trees that will surprise and please you.

JOHN CRONIN, H.T.—Colour rich rose. Flowers large well shaped, Prolific bloomer. Hardy constitution, will thrive in almost any situation.

K.A. VICTORIA, H.T.—A vigorous grower, and very free flowering. Pure white, with tinge of yellow in the centre. Vigorous grower.

KOENIGIN LOUISE, H.T.—Pure white. In our opinion it is one of the best whites yet introduced. Large and full, not many thorns. Highly recommended. (Best and most popular white rose).

KOOTENAY, H.T.—Creamy white rose, large and full. Good grower. (This rose does well in all localities where roses are grown, blooms well, becoming very popular. Highly recommended).

LAURENT CARLE, H.T.—Strong grower, blooms red and fragrant. (Large and full. Popular both north and south. Recommended).

LADY ROBERTS, T.—Reddish apricot, growth bushy. Recommended.

LADY ALICE STANLEY, H.T.—Deep silvery pink, pale flesh centre. Blooms well, strong grower. Recommended.

LADY HILLINGTON, H.T.—Orange yellow, long pointed bud. Is a favourite. Blooms freely. Vigorous. Recommended.

LADY HELEN MAGLONA, H.T.—Very sweetly scented, bright red with dark markings. A good red and strong grower. Recommended.

LEADING LADY, H.T.—Clear flesh pink. Bloom carried erect on rigid stem.

LADY PLYMOUTH—Creamy yellow, compact form. Holds well. Vigorous. Recommended.

LUDWIG OPPENHEMIMER, H.T.—Dark crimson scarlet. Strong grower.

LUIS BRINAS, H.T.—Orange copper, lovely pointed buds, opening slowly to a fully double flower with a high centre. When fully open the flower is soft old rose, flushed with gold.

LLEIDA, 1938—This variety reproduces the beautiful and popular colours of Contesa de Sagato; exterior yellow and interior red, but the flower is larger. Vigorous growth.

MADAME ABEL CHATENAY, H.T.—Blooms well formed rose pink, produced on long stems, vigorous grower. One of the wider known pinks. Recommended.

MADAME JOSEPH PERRAUD, P.—Nasturtium orange in the bud, changing with age to Nasturtium buff, with a delightfully shading of shell pink at edges of petals. Long slender buds with large full flowers. Strong grower.

MADAME JULES CROLEZ, H.T.—Rich pink, free flowering. Strong grower.

MADAME CONSTANCE SOUPERT, T.—Long pointed buds, apricot shaded peach.

MARRIANNE, H.T.—Mixture coppery orange, pink and red. Fairly large bloom. Vigorous.

MARGARET McGREDY, H.T.—Orange scarlet. Colour lasts and does not fade. Flowers large and full. Vigorous. Recommended.

MARY, COUNTESS OF ILCHESTER, H.T.—Blooms carmine pink, of beautiful formation. One of the best pinks. Recommended.

MARIE ADELAIDE, GRAND DUCHESS OF LUXEBURG, H.T.—Orange yellow, good form. Flowers carried erect.

MARY HART, H.T.—Crimson Scarlet flushed orange.

MOLLY SHARMAN CRAWFORD. Delicate white.

McGREDYS TRIUMPH, H.T.—Geranium red, flushed orange, gradually deepening to rich orange at base. Flowers large and full.

McGREDYS YELLOW, H.T.—Large buttercup, yellow flowers.

MRS. HERBERT STEVENS, H.T.—Vigorous, free branching growth. Large full flowers, long and beautifully pointed. White. Recommended.

MRS. DUNLOP BEST, H.T.—Reddish apricot; full blooms of fine form; free bloomer. Vigorous. Recommended.

MRS. FORDE, H.T.—Deep carmine rose. Grows well.

MRS. HAROLD BROCKLEBANK, H.T.—Beautifully formed rose, creamy white, centre buff, outer petals sometimes tinted salmon pink. Blooms large. Recommended.

MRS. HAROLD BROOKS, H.T.—Semi-double deep red rose. Good grower.

MRS. HENRY WINNETT, H.T.—Beautiful double red.

Yes, we know our Roses will surprise and please you — large and strong.

MRS. JAMES CRAIG—Beautiful dark pink, splendid form. Strong grower. Recommended.

MRS. FOLEY HOBBS, T.—Delicate ivory white, faintly tinged clear pink on edges of the petals. Strong grower.

MRS. FORDE, H.T.—Deep carmine rose. Good size flowers.

MRS. DUDLEY CROSS, H.T.—Pale yellow. Good bloomer. Recommended.

OLIVER MEE, H.T.—Buds very long and pointed of exquisite shape, which open to large full high centred flowers. Colour deep salmon, with flush of clear fawn, changing to deep salmon pink. Strong grower. Highly recommended.

PHOEBE, H.T.—Creamy white, slightly deeper in the centre, large full beautifully formed flowers with nicely reflexed petals.

PINK MAMAN COCHET, T.—Flesh coloured rose, shaded with carmine and salmon yellow. Large and full, fine long buds. Splendid rose. Should be in every collection. Recommended.

PRISCILLA, H.T.—A beautiful rose, rich pink blooms of magnificent size and shape.

PRESIDENT MARCIA, H.T.—Large flowers. Colour deep pink outside, and pale flesh pink inside. Not a real full bloom.

PINK RADIANCE, H.T.—Carmine pink, opening to well formed globular flowers with lighter tints on reverse of petals. Fragrant. Strong grower. Fine foliage. Highly recommended. (Should be in every garden).

QUEENSLAND BEAUTY, H.T.—A pink sport of Golden Dawn. The colour is deep rose pink in the bud stage, but when open the inner face of the petals show various shades of flesh pink which contrast with the deep colour on the outside of the petal. Vigorous grower. Becoming popular. Recommended.

RED RADIANCE, H.T.—Cerise red, a genuine sport from Radiance, possessing all the fine qualities of that popular variety. Strong grower. Prolific bloomer. Highly recommended.

RAPTURE, H.T.—It is a very fine colour indeed, and certainly best of all Ophelia sports. Vivid in colour, bright apricot, coral pink rose and gold.

RED LETTER DAY, H.T.—Semi-double rose of infinite grace and charm. Its velvety brilliant glowing scarlet crimson buds and fully opened flowers never fade. Vigorous.

REV. F. PAGE ROBERTS, H.T.—Rich yellow stained in the bud and outside of blooms with buff markings. Large, sweetly perfumed, well formed blooms. Vigorous yellow rose of strong growth and healthy foliage. Recommended.

RHEA REID, H.T.—Cerise blooms freely produced, large full, of good shape. Sweetly perfumed.

ROSELANDIA, H.T.—A sport from Golden Ophelia. Colour deeper and richer, with a larger flower. Free flowering.

SHELL PINK RADIANCE (known as Mrs. C. G. Bell). A sport of the popular radiance. Colour a delicate shell pink. Vigorous. Recommended.

SENSATION, H.T.—Rich velvet crimson red.

SILVER JUBILEE, H.T.—1938. Light golden yellow, with chrome base and canary edge. Beautiful yellow, full and quality good.

SHOT SILK, H.T.—Bright cherry cerise, overshot with salmon orange, flushed rose and a deeply veined buttercup yellow base. Vigorous. Recommended.

STAR OF QUEENSLAND, H.T.—Deep crimson maroon, full blooms. Recommended.

STATELY, H.T.—Pale flesh pink centre, deepening to light salmon. Strong, good grower, flowers freely. Recommended.

SOU DE H.A. VERSCHUREN, H.T.—Cadmium yellow, large, fairly full. Good growth. Strongly perfumed. Recommended.

SOU DE MADAME BOULLETT, H.T.—Rich yellow, long pointed buds, free flowering. Recommended.

SUNBURST—Colour cadmium yellow, with yellow orange centre.

TALISMAN—A very fine and attractive novelty, Quite distinct. Scarlet, pink copper, and gold are all to be found in the glorious shadings. Vigorous. Free flowering. Recommended.

UNA WALLACE, H.T.—Rich pink, large double blooms. A very fine pink rose which should be in every garden (one of the best pinks). Recommended.

WARRAWEE, H.T.—Extra long pointed buds of clear rosy salmon, which when open disclose an inner surface of silvery pink. Vigorous.

WHITE ENSIGN, H.T. White, medium sized blooms, lasting well when cut. Good grower. Recommended.

W. R. SMITH—Creamy white, often shaded rose, full blooms. Splendid garden variety. Recommended.

WHITE MAMAN COCHET—Creamy white, tipped pink. Good strong grower, and bloomer. Still one of the best. Recommended.

WHITE LORD TARQUIN. Medium size, white blooms. Continuously in flower.

YVONNE VACHEROT, H.T.—White, suffused soft pink, blooms freely. Vigorous and good. Recommended.

YVES DRUHEN, H.T.—The darkest free blooming rose. Dark velvety red.

YELLOW DRUSCHKI—Pale creamy yellow. Full. Good blooms.

There is no hit and miss about these Rose Trees. Everyone is full of life.

CLIMBING ROSES.

AMY JOHNSON, H.T.—A vigorous grower; bright foliage, sweetly scented flowers, lovely shade of pink.

BLACK BOY—Deep velvety crimson, shaded blackish maroon. Large single blooms. Vigorous, sweetly scented, mildew proof.

CLOTH OF GOLD—Pale yellow, with deep centre. Large and vigorous.

CLIMBING COLUMBIA, H.T.—Colour rose pink. Vigorous climbing sport of the popular dwarf of the same name.

CLIMBING DAILY MAIL SCENTED, H.T.—A strong climbing sport of the very dark red rose, of the same name. Sweetly scented. Strong grower.

CLIMBING DAME EDITH HELEN, H.T.—Vigorous. Deep glowing pink. Flowers full and of perfect form.

CLIMBING ETOILE DE HOLLANDE—One of the best red climbing roses... Blooms very rich dark, but bright red. Vigorous and free, sweetly scented. Recommended.

CLIMBING GENERAL MACARTHUR, H.T.—Vigorous, double red flowers.

CLIMBING GOLDEN DAWN, H.T.—A very vigorous climber, exceptionally well foliaged. Colour rich sunflower yellow. Recommended.

CLIMBING HADLEY, H.T.—Strong climber, dark red, similar to the dwarf.

CLIMBING J. L. MOCK, H.T.—Pink, similar to the dwarf of the same name.

CLIMBING LAURENT CARLE, H.T.—Strong grower, free flowering. Red.

CLIMBING LADY HILLINGTON, H.T.—Sport from the well known dwarf variety.

CLIMBING MADAME BUTTERFLY, H.T.—Strong, salmon flesh shaded with apricot and gold base. Richly perfumed.

CLIMBING MAMAN COCHET, T.—Strong, producing fine long buds of flesh coloured rose.

CLIMBING MRS. HERBERT STEVENS, H.T.—Very vigorous, large fairly full snow white flowers. Hardy.

CLIMBING SOUV DE MADAME BOULLET, H.T.—One of the best climbing yellows for general all round excellence. Vigorous, produces long buds of rich deep cadmium yellow, opening into fairly full flowers with a rich T. scent. Free flowering. Recommended.

CLIMBING ORLEANS POLY. Suffused carmine with white centre.

CLIMBING PENELOPE—Sport of Penelope... Crimson outer petals and creamy centre.

CLIMBING PERLE DES JARDINS, H.T.—Deep straw yellow, sweetly scented, usually good growth.

CLIMBING PROSPERITY—Perpetual flowering rose, white tinted pink. Small rosette flowers, produced in clusters. Make fine show.

CLIMBING SOU DE LA MALMAISON—Strong grower, flesh pink.

CLIMBING RADIANCE, H.T.—Vigorous climbing sport, producing carmine pink flowers in great profusion. Clean, healthy grower.

CLIMBING ROSE MARIE, H.T.—Pink blooms, sweetly scented.

CLIMBING REINE MARLE HENRIETTA.

CLIMBING RIGGER LANBERLEY.

CLIMBING SHOT SILK, H.T.—Vigorous and healthy, glossy green foliage. Variable coppery salmon pink blooms.

CLIMBING SACHENGRUSS, H.T.—Flesh ashed china rose. Large blooms.

CLIMBING SUNBURST, H.T.—A strong vigorous climbing sport, from the popular yellow rose.

CLIMBING TALISMAN, H.T.—As in the dwarf, scarlet, copper pink and gold are to be found in the shadings. Recommended.

CLIMBING WHITE MAMAN COCHET, T.—A strong climbing sport of the very popular white variety.

DWARF POLYANTHAS.

Most Customers leave to us the selection of these.

ALICE—Good size blooms, double pink with light centre.

CORAL QUEEN.

CECIL BRUNNA—Pale salmon pink, small, free, strong.

CRANBROOK—Purplish colour, single. Good grower.

MISS EDITH CAVIL—Scarlet crimson—semi double.

ELLEN POULSEN—Bright pink, blooms large and double. Vigorous.

FIREGLOW—Fiery orange red. Vigorous.

GOLDEN SALMON—Fiery golden salmon. Flowers produced in large full tresses. Recommended.

GLORIA MUNDI—Double orange scarlet, borne in clusters.

IDEAL—Dark crimson. The best red.

JENNY SOUPERT—White.

KATHERINA ZEIMET—Small rosette blooms of pure white.

LEONIE LAMENSCH—Coppery red, shaded yellow.

MAUDE GLADSTONE—Malmaison pink of good size, lasts well when cut.

NORMAN LAVANSAUER—Like Orleans.

ORLEANS—Carmine pink, white centre, large semi double, very free. Recommended.

PAPA HORBROY—Light purple, single.



PRACTICAL HINTS ON ROSE CULTURE

On arrival keep same unopened in a cool place until you are actually ready to proceed with the process of planting the Rose Trees.

The plants are carefully packed and we expect each tree of every parcel to open up in a crisp, fresh condition.

When lifted from the parcel the roots should be dipped in fresh cool water, but not left in the water. Then cover roots with some of the packing material and a wet bag. **On no occasion whatsoever should the roots be left exposed to the air, wind or sun.**

SOIL.

As already outlined in this booklet the ideal soil is a rich, heavy loam. Clay alone for rose growing is useless. Roses will grow well in any soil with necessary preparation prior to planting.

HEAVY BLACK AND RED SOIL.

Can be improved with an application of sand and leaf mould or cow manure.

LIGHT CLAYEY AND SANDY SOIL.

Needs building up with heavier soil. Plenty of well-rotted manure also is valuable in light soils.

CLAY ALONE.

Some planters have only a clay patch—still, with extra work well carried out, fine rose trees can be grown.

With plenty of well-rotted cow manure together with six or seven inches of soil and some sand—a satisfactory rose bed may be made up.

SITUATION.

The situation where roses are to be grown is of importance—they enjoy plenty of sunshine. Open spaces are preferable to sheltered positions as the latter favour the appearance of mildew and black spot, both of which fungus pests are greatly encouraged by moist shaded conditions. Experience has proved that roses are best grown in separate beds, which should not be too wide. 5ft. 6in. to 6ft. is considered ample for all but the most vigorous growers and this space will accommodate two rows of plants. Where the beds are along a fence or wall, the tallest variety should be placed in the back row and those of small growing habit placed in front as this allows the blooms to be displayed to the best advantage.

PREPARATION OF THE GROUND.

There is a prevailing idea that it is necessary that the ground be trenched two or three feet deep in order to provide ample loose soil for the roots to penetrate. This we regard as a fallacy, as the practice is not only unnecessary but a sheer waste of time and energy. In the first place roots rarely penetrate such a depth in the soil. Our experience is that if the soil is turned over to a depth of twelve to fifteen inches it is sufficient preparation for roses. Draining is advisable where the soil is apt to become water logged by the retention of too much moisture.

PLANTING.

The time for planting is largely governed by local conditions, although roses may be planted at almost any time if the weather is moist. The best time is usually from April till August inclusive, during this period the conditions are such that little risk is incurred in planting. It is possible to plant in some localities either earlier or later than the periods mentioned if reasonable care is exercised. Roses planted during the early Autumn make a start before the Winter but unless properly cared for, they may be subject to die-back later on.

PLANTING DISTANCES.

To obtain the best effect in a rose bed, strong or robust growers should not be planted with weakly ones. The indiscriminate planting of varieties with different habits of growth has the effect of marring the artistic effect.

Assuming that the soil is properly prepared, plant dwarf budded varieties sufficiently deep so that the bud, i.e., junction of stock and plant, is about 1in. below the surface of the soil. The depth of planting should be governed by the nature of the soil. For instance, on stiff clay, with a shallow sub-soil planting should be at a lesser depth than in loose loams or sandy soil. But if the plants are planted too shallow there is always the liability of their being blown over during wet, windy weather, especially if they are not staked. On the other hand, by planting too deeply in heavy badly drained soil, the plants are likely to suffer from too much moisture.

When planting, the roots should be well spread out in their natural position without bending, giving them a downward tendency; by making the holes sufficiently wide and making a little mound in the centre, this is more easily accomplished. The roots should be covered with fine earth and then firmly tramped. The operation is then completed by giving a liberal watering, later filling in to the level of the surface with loose soil. Water should afterwards be applied only when necessary. Before the soil becomes dry and caked on the surface, it should be loosened later when in a dry enough condition. During the early stages of growth, the soil should be kept in a moist but not excessively wet condition, as this has a tendency to retard the plants from becoming established.

MANURING.

We wish to utter a definite warning against the practice of applying fresh animal manures or chemical fertilizers in the holes where the young plants are placed, as in both cases this is likely to have an injurious effect. The same advice holds good in regard to, applying unrotted animal and chemical manures close against the stems of newly planted roses. The reason for this advice is that animal manure creates heat in the process of putrefaction, and chemical fertilizers are caustic in action in their concentrated form and should not be applied to any but well established plants.

There is considerable conflict of opinion on the question of manuring roses, and these vary as to the respective merits of animal manures and chemical fertilizers. Both scientific experiments and practical experience have clearly established the fact, that to obtain the maximum benefit it is necessary to apply both forms. For example, the continued application of purely animal manures is likely to produce a too vigorous growth which will be more subject to fungus diseases such as mildew and black spot. Animal manures are also notably deficient in **potash** and the result is unbalanced growth, for which the application of potash in the form of muriate of sulphate is advisable. Of the animal manures, well rotted cow manure is generally considered the most suitable.

Chemical fertilizers should contain the three essential plant foods, viz.: **Phosphoric acid, nitrogen** and **potash**. Special mixtures may be obtained in which all three are blended in the proper proportions and the inexperienced grower will be well advised to purchase a suitable mixture rather than the separate ingredients and mix for himself. Where blood and bone manure is used, it will be improved by the addition of extra **potash** as this will make it more complete from the chemical point of view.

Two or three handfuls of this mixture sprinkled evenly round each plant and forked in immediately after, is a sufficient application but to maintain a vigorous growth throughout the year and the maximum number of well developed blooms, this should be done, say, every four or six months.

Regular liming every second or third year is also very beneficial as it makes the soil more congenial for the plant to grow in, besides making available plant food which would otherwise not be released. By careful attention to these details and by giving the plants an abundant watering whenever necessary, preferably at night, a plentiful supply of blooms should be ensured.



From Our Previous Catalogue.

FERTILIZERS FOR CITRUS. NECESSARY FOR SUCCESSFUL FRUIT GROWING.

INCREASING THE YIELD OF CITRUS FRUITS.

We receive many requests for information regarding the kind of fertilizer to use on **citrus trees** and the methods of application. With a desire to make this booklet as useful as possible to orchardists, we suggest the following for your careful reading:—

FERTILIZER FOR PROFIT.

One cannot fail to notice that many orchardists in the main area are to-day rapidly losing ground—the trees are more or less in distress and the fruit poor in size and quality.

However, "Two wrongs do not make a right," and one must look for some economic means of doing the right thing. It may be advisable and even necessary, to concentrate on that section of the orchard from which the highest returns are likely—planting thereon adequate green manure crops and applying well-balanced fertilizers to the trees in sufficient quantities to supply both tree and crop demands for nutriment. **BETTER QUALITY FRUIT** would thus be produced for which higher prices would be obtained. At the same time the trees would be kept in good heart for the period when the fruit should realise prices giving the margin of profit over the cost of production which the orchardist justly deserves.

As distinct from the lack of liberal applications of complete, balanced fertilizers and lime, in many instances, but not in all, it appears that many orchards are suffering from shortage of humus in the soil.

IMPORTANCE OF HUMUS.

HUMUS has been characterised as "The life of the soil," and is formed by decaying organic or vegetable matter. It not only improves both the physical and chemical conditions but also provides a home for the millions of beneficial bacteria which are at all times working to improve the fertility of the soil.

IT PAYS TO GREEN MANURE.

Well rotted stable or farmyard manure would help to build up this humus but unfortunately, sufficient quantities are not available. Leaf mould has been used extensively in New South Wales with very good results; other methods to provide this most essential material are found in planting peas, beans, vetches, tares, lupins, clovers, barley and wheat—all of which with the exception of the last two, are legumes which store up nitrogen from the atmosphere in nodules formed on their roots, which nitrogen ultimately becomes available for plant assimilation.

One often hears of the soil in an orchard being unfavourable for growing peas, etc.; under such circumstances a bulky crop of barley or rye should be grown.

TIME OF PLOUGHING UNDER GREEN CROP.

The necessary seed having been planted during late February or early March should, by the end of July or the beginning of August, provide a good bulk of green crop for turning under. Care should always be taken to see that this crop is turned under at least five or six weeks before the blossoming of fruit trees, otherwise faulty setting of the fruit may occur: also, with the advent of a dry spring, if turned under late, too much moisture will be removed which otherwise would be available for the trees.

Mineral forms of nitrogen, such as sulphate of ammonia and nitrate of soda, should be used to the exclusion of organic forms, except where supplementary applications of phosphates and potash are used.

Sulphate of ammonia is the cheapest and most economical fertilizer on the market.

PHOSPHORIC ACID.

This plant food is an essential ingredient of plant proteins. It has an especially invigorating effect on both root and seed development. It performs highly important functions in plant and fruit development and nothing can replace it.

Phosphoric acid is chiefly bought in the form of superphosphate and this material, besides supplying phosphoric acid in a readily available form, also supplies sulphur and calcium (lime), both elements of great importance in plant growth.

As most Australian soils are deficient in phosphorus, it has become a general practice to use super-phosphate as the chief constituent of mixed manures because it is the most valuable fertilizer containing phosphoric acid.

F. E. BENHAM, Specialist, "Benyenda Nurseries", Byrnestown, Q'land., Australia.

POTASH.

Potash is absolutely required by plants. It aids in the formation of starch within the plant and in the building up of woody structure. It is essential in the formation of juices, sugars and the fleshy part of fruits and is of great importance in citrus culture.

HOW A TREE FEEDS.

Plants obtain their food through both leaves and roots—in the form of gases through their leaves and the mineral matter in solution through their roots. The solution of mineral salts passes through to the leaves by the vascular system of the plants, where it comes in contact with the carbonic acid absorbed from the atmosphere through the leaves. Under the influence of sunlight chemical reactions take place, resulting in the formations of sugars, starches and protein substances. These, in turn, are passed on to all parts of the plant where growth is taking place and are there built up into plant tissue or stored up in plant cells for further use.

During the day, when the carbon dioxide breaks up, oxygen is given off from the leaves. The mineral matter in solution enters the plant through delicate root hairs at the tips of the roots, whence it is taken to the leaves, where the water vaporises through the leaf pores into the atmosphere. As fast as the leaves transpire water, more water carries mineral matter to the leaves and so the process goes on. The process of assimilation continues as long as the leaves are green and the formation of sugar, starches and proteins also continues; thus the need of a constant supply of mineral matter in the soil.

As these mineral matters are generally not adequately present in the soil in available forms, the frequent and regular application of suitable fertilizers becomes imperative.

The important principle to be borne in mind is that there must be present in the soil during the entire growing season a sufficient amount of all the necessary elements in an immediately available form to meet the fullest requirements of the trees.

Only fertilizers which can furnish all the lacking plant food elements in the necessary forms throughout the entire growing season, can be expected to give the best results.

TWO OR MORE APPLICATIONS ADVISABLE.

Fertilizers should be applied to bearing trees at least twice during the year; but if thought advisable three or even four applications may be given with beneficial results.

Taking the foregoing into consideration, the necessity of having a fertilizer mixture for citrus trees containing all of the essential plant foods is apparent. Whilst no one of them can separately fulfil the functions of them all, only the presence of each in **balanced** proportions will produce the full effect on tree and crop. The amount of each required will vary according to the nature of the soil to be treated. Sandy soils and loams are usually deficient in all three essential plant foods—nitrogen, phosphoric acid and potash—and thus will require a well balanced complete fertilizer.

The heaviest soils, usually more or less of a clayey nature, generally contain a plentiful supply of potash but lack nitrogen and phosphoric acid.

A soil rich in humus may contain much nitrogen but not all in the form available for plants to assimilate.

TIME FOR APPLICATION OF FERTILIZERS.

A week or two before the buds begin to swell is the ideal time for applying fertilizer dressings, by spreading evenly over the spaces between the rows, commencing 12 to 18 inches from the butt of the tree. All fertilizers should be worked well into the soil.

Generally speaking, applications of fertilizer during February and March give the best results. We can recommend from our own experience, the use of complete fertilizer containing Sulphate of Ammonia, Superphosphate, Blood and Bone, and Potash.



"Benyenda" Citrus Trees

